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ABSTRACT

In an effort to explore the relationship between employed students and community colleges, this paper provides a extensive review of the literature on business and industry connections to higher education. First, introductory material examines the lack of comprehensive training programs in U.S. business/industry and the dearth of evaluative research on the effectiveness of existing job training programs in the literature. Then, a review of the literature is presented in three main sections: private sector and noneducational literature and studies; higher education literature and research; and case studies. Each section of the review consists of a summary and a critique of relevant books, reports, studies, and articles. Next, a summary of prominent themes in the literature is presented, drawing the following conclusions: (1) most of the literature describes the benefits of collaboration for educational institutions and business and industry or details the economic impact of linkages between academia and the private sector; (2) themes concerning credit for industry training, simple and flexible approaches to the private sector, commitment from top college leadership, and the importance of providing a quality educational product are common throughout; (3) the literature suggests that changing demographics and the impact of technology will increase the demand for worker education, especially at the non-managerial level; and (4) business and industry must develop methods of identifying the goals and objectives of workers in order to improve the quality of linkages between colleges and the private sector and provide the best possible training for employees. An 105-item bibliography concludes the review. (JMC)

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Community Colleges and Working Students:
Review of the Literature and Research

Walter H. Nolte, Ph.D.

Continuous learning is the primary source of ongoing value-adding for the corporation.
(Tom Peters, Thriving on Chaos, 1987, p. 640)

Tom Peters (1987) devoted an entire chapter on training and retraining in his book Thriving on Chaos. The quote above illustrates his attitude on training. Peters suggests that within the next two to five years a good corporation should increase its training budget by 200% to 300%. He asked, "What have you done today to enhance the relative overall useful skill level of your work force vis-a`vis competitors" (Peters, 1987, p. 387)? The lack of workforce training, according to Peters, is a national disgrace. Most training is provided to managers, not the operating core of businesses. Japanese and Germans outspend Americans by large margins on workforce training. Peters argued that everybody in an organization should be trained. IBM, Federal Express, and Disney thrive on training. According to Peters, a good training program will be required for all employees. A good training program will have generous funding and be used to instill values and visions, especially when starting a new strategic thrust (Peters, 1987). Peters' book, however, is written from a business and industry perspective, not a higher education perspective, and certainly not with a research orientation or an emphasis on working students.

The literature is extensive on the subject of human resource development, adult students, continuing education, contract and customized training, retraining, and employee training. These descriptors can be used to access the ERIC system for citations on the subject of employed students and community

colleges. However, like Peters' work, most of the literature can be characterized as opinion pieces and are not based on hard data or research.

There is a considerable amount of literature produced by the educational system regarding building linkages with the private sector and methods for developing contract and customized training programs, but very little material on the impact of education and training on employed students or the impact of employed students on higher education. There is some literature on the impact of higher education on economic development, but limited material on the impact of labor force development on economic development or higher education. The private sector has produced a variety of literature advocating closer links between business and academia; however, most of this material is either in the "how to" format or describes the benefits of such linkages.

The purpose of this paper is to examine the research and literature available on employed students and community colleges. This paper will be divided into four sections: 1) private sector and noneducational studies; 2) higher education research; 3) case studies; and 4) a summary and conclusion. The paper will concentrate on the literature related to business and industry connections with higher education to approach obliquely the topic of employed students.

Private Sector and Noneducational Literature and Studies

Doll (1980) suggested that corporate training will expand to fill a vacuum caused by a crisis in elementary, secondary, and higher education. He maintained that universities have lost their credibility with business and industry and that industry can provide better training and research than higher education

in the technological fields. Businesses that train specifically for their own needs realize a better return on training dollars, and corporate education will expand to meet these industry training needs. In addition, Doll suggested that at some future time corporations may completely replace higher education in the field of education as multinational corporations replace the nation-state.

A survey of the top California corporations revealed the difficulty of developing linkages between industry and academia (Broderick, 1982). The survey determined that nearly all firms offered education and training programs for their workers; however, excluding tuition reimbursement plans, only a few were cooperating with the educational sector. Over 50% of the firms provided tuition for employee-students if they were taking courses to secure basic skills, specific job skills, supervisory training, management training, or leisure activities. Asked why there was a problem developing stronger ties between business and colleges, corporate trainers said there was a mutual lack of understanding of goals, lack of a real world orientation in educational institutions, and excessive red tape and regulations in education. Moreover, training departments distrust academicians, and education's responsibility to taxpayers and corporate concern for stockholders are divergent loyalties that discourage cooperation. Training managers suggested solutions to overcoming these obstacles, including more study on how to bridge the gap between theory, practice, and the philosophical differences between education and industry (Broderick, 1982).

Carnevale and Goldstein used Census Bureau data to analyze employee training in a 1983 study for the American Society for Training and Development. Their research measured the impact of high-technology on the work force and

evaluated labor market trends. They determined that, at best, high technology will employ 10% of the American workforce, but that there would be skill shortages at the lower end of the employment scale as a result of the "compression" of technology downward to the operator level. They also argued that the 63 million baby boomers will shoulder their way through the American economy and the labor ranks. This is the best-educated population in American history, with high expectations for job security and advancement. Dramatic changes in the workplace will be necessary to avoid serious friction if these expectations are to be met. Women will also take on a more active role in the workplace, with 63% of adult women working. However, wages for female employees will decline in relation to men's wages. The authors argued that America needs to change from an emphasis on investment in capital to a concentration on the human factor in order to sustain the U.S. economy (Carnevale & Goldstein, 1983).

The second part of Carnevale and Goldstein's book evaluated the size and scope of employee training. The authors admitted that relatively little is known about the training of employees or the total cost of such training in the private sector. Estimates of the cost of formal training range from $2 to $100 billion dollars per year. Based on an analysis of two recent surveys, the authors concluded that 6.3 million people were involved in training and education from the nation's firms employing 500 or more workers. In-house training was provided by 58.7% of the firms, outside training by another 38.0%, and 3.2% used both. Higher education provided 44.6% of the job-related adult education programs, and other private educational entities provided the balance. Community colleges provided only 6.4% of this training, while business firms

provided 33.9% (Carnevale & Goldstein, 1983).

Carnevale and Goldstein's work contains a plethora of data regarding distribution of training by industry, percent of employee involvement in training by industry category, distribution of trainees by occupation, and distribution of courses by subject. Men received more training than women, and most training occurred between the ages of 25-44. Better educated workers received a disproportionately large share of training, and white collar workers received 75% of all training although they composed only 50% of the labor force. Community colleges provided only 18.6% of the training provided by outside sources compared with 34.9% provided by universities. Community colleges were predominant in providing training for craft, clerical, laborer, and operative workers. Universities were predominant in providing managerial, sales, and technical training. The authors concluded that the fast growth in the 25-44 year old age segment will cause a demand for more training, and that training will increase faster than total employment because of the nature of economic growth in this nation and the demographics of the work force (Carnevale & Goldstein, 1983). There are several implications of this study for community colleges. The market for training related-services will dramatically increase. Moreover, despite a relatively small share of the training enrollment for community colleges, the opportunity to increase the market share in training should be enhanced because colleges exists in almost every community in the nation.

Morrison and Rappaport (1984) described information related to an aging workforce and concluded that if older workers are to remain effective, their skills must be constantly updated to assure productivity. The authors recommended

that policymakers at the national, state, and local level recognize the need to promote lifelong learning.

Becker (1975), in Human Capital, provided an interesting analysis of the relationship between investing in human resource development and economic return. Becker used a quantitative empirical approach to measure the effects of learning and education on wages and rates of return for different segments of the population, including white males, non-whites, women, and college and high school dropouts. He included a comparison between rural and urban populations. Becker concluded that most investment in education raises earnings for older employees, but it lowers earnings for the young because of time lost out of the work force. His conclusion provided a powerful argument for community colleges to promote the concept of lifelong learning to the working student (Becker, 1975). Bloomberg (1989) reviewed literature related to the cost-benefit analysis of employee-training programs. He concluded that although there are a variety of problems related to cost-benefit assessment, cost-benefit analysis of training is worthy of study in a technologically advanced economy needing to allocate scarce resources.

As indicated above, most formal education and training in the private sector is directed to the managerial ranks. Lower level workers are not as involved in training; yet, as industry shifts to more technical systems of production, in-service training, retraining, and upgrading will become vital for all workers. Gordon (1986) conducted a study for Training magazine on how much training is done in the workplace, what is being taught, and who is doing the training. He found that 82% of all training in the workplace is done on paid time, and businesses with 50 or more employees will provide formal training to

36.5 million workers who spend 1.3 billion hours per year in training. Middle managers received the most training, averaging 44.2 hours per year; and production workers receive the least amount of training of any classification of employees. Classroom training through seminars and workshops is the most common method of training, and most of the firms surveyed relied on both in-house training and outside educational programs. In 1986 in-house training accounted for 39% of all training provided by companies with 1000 or more employees, compared with the 57% reported by Carnevale and Goldstein in 1983. The trend seems to be for businesses to rely less on in-house developed programs, an encouraging tendency for community colleges interested in meeting employee training needs (Gordon, 1986). Gordon also provided an extensive list of specific topics of training available to employees, either in-house produced courses or outside-purchased programs. Community college personnel should give careful attention to this list when designing programs for the employed student.

Although dated, an interesting report by Lusterman (1977) provided some material for comparing employee training in 1977 with today's needs. This report was cited in many of the works reviewed in this paper. Lusterman studied the prevalence of employee training and participation rates by company size and type, the characteristics of the employee, use of outside resources, and tuition-aid programs (89% of all companies with more than 500 employees reported tuition-aid programs). In 1977, management and supervisory training accounted for 24% of all training. This is consistent with Gordon's findings in 1986. Eleven percent of companies with more than 500 employees were providing remedial education, compared to 14.8% in 1986 (Gordon,1986).

Lusterman also reported that the smaller the company's work force, the more likely the company would rely on external sources for laborforce development. Lusterman determined that corporate education is pragmatic in nature, the participants are highly motivated, and workplace education is often an integration of formal classroom experiences and on-the-job training. "It is by no means easy to distinguish work from learning" (Lusterman, 1977, p. 65). This factor also needs careful attention when community college personnel design programs for the working student.

In 1980 a study reported in Phi Delta Kappan indicated that enrollments in out-of-plant engineering and scientific continuing education were 114,688 for university programs, 71,904 for professional associations, and only 14,000 for community colleges (McQuigg, 1980). Other studies have indicated that technical and professional organizations provided significant professional development for their members, often in partnerships with universities. Lynton's (1984) The Missing Connection Between Business and the University is an excellent work that synthesizes recent research on human resource development, employer-sponsored education, and the role of colleges and universities in this field. Unfortunately, this important work on building linkages between the private sector and postsecondary education contains only two pages on community colleges. Lynton reported that despite the strong orientation of community colleges towards cooperation with business and industry and a commitment to meet employee in-service needs, the number of workers enrolled in community colleges is small compared to the estimated 12 million per year course enrollments in higher education and privately sponsored educational programs that are employer funded. Lynton also

reported that only three to five percent of eligible employees take advantage of tuition-aid programs, and no more than two percent of blue-collar workers use this benefit. This might help to explain an apparent low enrollment of employed students in community colleges reported by both Lynton and McQuigg. Another explanation, however, might be that studies by the private sector or noneducational entities do not reflect an accurate picture of the impact of working adults on community colleges.

A 1984 study by ITT Educational Services (ITT) was based on interviews of 300 human resources officers from Fortune 1500 companies regarding their perspectives on retraining workers and educational alternatives for training. This study determined that 84% of the human resource executives felt that workers were concerned about losing jobs and their abilities to learn new skills. Forty-four percent would hire new workers with requisite skills rather than retrain existing workers. The two most crucial factors for successful retraining were employees' willingness to be trained and their current skill levels (ITT, 1984).

Most businesses provide little or no training for dislocated workers or workers with disabilities, despite the plethora of government sponsored programs targeted to train these groups (Battelle, 1990). However, companies are increasingly recognizing their role in human capital development. A study by Dertouzos and Solow (1989) found that although companies recognize the critical importance of upgrading employees' skills, the practical application of this principle is slow to filter down to the worker level. Small and medium size firms lack the financial resources and are concerned about losing trained workers to larger firms. In a survey of 2,000 small businesses in Washington

State, 22% of the firms indicated that there were no training/retraining services available designed to meet their business needs. Sixty-two percent of the 2,000 responding firms indicated that lack of a skilled workforce impacted the overall activities of their business (Small Business Improvement Council, 1989). Dertouzos and Solow concluded that the few positive signs of labor-management bargaining that focus on training will not overcome a reluctance to emphasize training and to reorganize the work environment to promote continuous learning. Political leadership will be necessary to find a solution.

In 1990 the American Society for Training and Development, in cooperation with the U. S. Department of Labor, released the results of a 30-month study on training practices in the private sector. The primary book, Training in America: The Organization and Strategic Role of Training, confirmed that employers spend approximately $30 billion on formal training and $180 billion on informal on-the-job training per year (Carnevale, Gainer, & Villet). Employers provide 69% of formal training and buy 31% from outside providers. Community colleges and technical institutions provided 15.5% of private sector training, worth $1.4 billion. According to the authors, community colleges are the foremost providers of quality training and upgrading in the education system, training five million workers and upgrading 3.3 million in 1987. Employers spend between one to two percent of their payrolls on formal training. The larger employers tended to rely more on outside training, although community colleges and vocational schools provided more training on a per capita basis for smaller firms. Thirty-five percent of all employees received some type of upgrading; however, as indicated in previous studies, managers, supervisors, professionals, and technical personnel received more training than

laborers, craft, and machine operators.

Carnevale, Gainer, and Villet (1990) maintained that employers form linkages with outside providers to solve specific training problems. They commonly seek outside help for a highly specialized need or a generic need that is commonly available, preferring to retain company specific training topics for internal training efforts. In addition, a firm will seek the assistance of outside training services when internal expertise or time is lacking, only a small group needs training, the subject matter is not sensitive, or there are cost benefits associated with retaining an outside provider. The authors provided a series of guidelines for forming linkages between firms and training providers, described the role of training providers and in-house staff, and detailed criteria for selecting outside providers. In addition, they provided the positive and negative aspects of various outside providers, characterizing community colleges as aggressive, directed, and progressive in their approach to employer training. Seventy-five percent of community colleges provided some form of customized training for the private sector.

The final chapters of this book detailed the training methodology, focus, and most common providers for typical training topics in business and industry. Training is related to organizational strategy, organizational change, and market conditions. A "how to" section described methods for connecting training to decision making; and recommendations were provided for employers, education, and government to improve training. Carnevale, Gainer, and Villet suggested that employers should integrate resources, use applied approaches to learning, connect training to human resource management systems, decentralize learning systems, and foster training linkages with supplier firms.

Educators should encourage cooperative learning experiences, especially those that imitate real-world situations. Government should provide human capital development to the disadvantaged, design programs for the dislocated worker, provide incentives for research and development, and encourage experimentation with training designed to upgrade employee skills.

Three companion books were provided with Training in America (Carnevale, Gainer, & Meltzer, Workplace Basics: The Essential Skills Employers Want, 1990, and Workplace Basics Training Manual, 1990; Carnevale, Gainer & Schulz, Training the Technical Work Force, 1990). These books detailed other findings from the study and provided step-by-step descriptions for initiating basic skills training programs in the workplace. Workplace Basics confirmed other reports and studies regarding the skills and abilities required for a quality workforce. Carnevale, Gainer, and Meltzer suggested that new technologies are redefining basic skill requirements. "By decentralizing the production of products and services, information-based technologies are increasing the autonomy and value of employees at the point of production and service delivery (p. 8)." Although technology is eliminating jobs, technology is also increasing the range of skills necessary to perform the jobs that remain. America's challenge is to upskill employees who are responsible for the production and sale of products and services. Therefore, workers need reading, writing, computational, communication, teamwork, leadership, and critical thinking skills. However, unlike other researchers on employee skills, Carnevale, Gainer, and Meltzer suggested that workers also need to be able to motivate themselves, set goals and negotiate, have a high level of self-esteem, and have an understanding of organizational culture. In

addition, employees need to learn strategies for acquiring new skills. Employee acquisition of all the abilities recommended by Carnevale, Gainer, and Meltzer would result in what one author termed the "renaissance technician" (Rosenfeld, 1986). Rosenfeld suggested that the responsibility for innovation rests on the technical skills of the labor force and that these skills can no longer be taught in just 12 years of formal schooling.

In summary, industry has become involved in employee education for the following reasons:

1. To compensate for inadequacies of traditional education, not only in basics, but to train college educated employees who lack abilities in a wide range of generic areas such as communication, decision making, and interpersonal skills.

2. To cope with economic and social changes that effect the workplace.

3. To provide upward mobility for employees for more technical or managerial responsibility.

4. To cope with the changes in technology that make job skills and knowledge obsolete.

5. For proprietary or competitive reasons.

(Craig & Evers, 1981, p. 33)

Higher Education Literature and Research

As indicated, the educational community has generated a variety of studies on continuing education, business and industry linkages, and contract and customized training. However, these studies are, by and large, oriented toward administrative issues. Research on the goals and objectives of employed students and the satisfaction (or lack of satisfaction) of employees and employers regarding employee training in higher education is limited.

Nonetheless, some studies have described the demographic characteristics of working students.

Sheldon (1982) identified five categories of vocational students entering California community colleges. These categories were program completers, job seekers, job upgraders, career changers, and license maintainers. Program completers and job seekers tended to be younger, have lower educational levels, and have less employment experience than the other groups.

Riley (1984) surveyed 8,000 community college students in transfer courses in 1983. The results of this study indicated that only 24% planned to transfer, 22% enrolled to train for new careers, 23% to gain new skills to improve current job performance, and 25% for personal interest in the subject. About 27% of the study's sample already held bachelor's degrees, and 59% were age 21 or older (Riley, 1984).

A study by the New York State Adult Education Center determined that 4,000 companies and unions were providing basic skills training to 156,000 people in New York. Many of these programs were funded by the Adult Education Act, an example of industry, school, and government partnerships. Some of the programs were funded by business and industry, which also contributed office space, counseling, and staff to the programming efforts (Business and Higher Education Report, 1986). As is typical of such studies, this report only dealt with what training students were offered. There is no indication whether the training was successful or if the students met their goals.

There have been several research projects on the role of community colleges in economic development, a role that cannot be separated from human resource development. In 1986, the National Council for Occupational

Education (NCOE) commissioned a survey of community colleges "to examine the nature and scope of community college involvement in economic development" (NCOE, 1987, p. 4). Although this study confirmed that economic development was one of the central issues among community colleges, the study provided little insight into community colleges' relationships with the working adult. The NCOE study concentrated on marketing the community college for economic development, defining a mission, developing policies, and identifying personnel. Other issues in the study dealt with the extent community colleges were providing technical assistance and customized training for the private sector. In this survey, responses were received by 442 colleges or 38% of the population. Of those colleges which engaged in economic development, 93% provided supplemental training for employees, 94% prepared workers for career changes, 91% retrained displaced workers, 76% provided literacy education for employees, 87% sponsored in-plant training, and 67% provided training support for professional or trade associations (NCOE, 1987). These results demonstrated tremendous support by community colleges for the education of the employed worker, yet described little about the goals and aspirations of the working adult.

Carnevale (1983) provided a more general view of higher education's role in the economy. Carnevale postulated that the decline in earning power of a college graduate would have a negative impact on college enrollments, as the overwhelming majority of students attend college to enhance income and job prospects. He argued that the result of this trend is an increase in business school enrollments. He also argued that Americans have devalued education by measuring the importance of education only on a wage scale. The prospect

of a youth shortage, poor economic performance, new technology, and global competition provides a powerful case for continued education. Carnevale related the tremendous growth of corporate education to America's lack of attention "to the economic importance of knowledge and human resources" (p. 11). He called for a reduced isolation of postsecondary education and a strategy for more and better education and training (Carnevale, 1983).

Gold (1981a) reviewed the history of cooperation between education and the private sector, the "shadow education system" operated by the corporate world, the importance of academia and industrial innovation, college credit for industry training programs, the role of postsecondary education in economic development, and the linkages between colleges and corporate training. Gold concluded that one of the major problems regarding analysis of business and college linkages is that:

> so little is known about the scope of current interrelationships between these sectors (noneducational training) and other components of the learning systems as they exist in the communities, in states, and nationwide (1981b, p. 109).

Far too little is known about the extent of corporate education and human resource education in the private sector, about the extent of contract training, about the benefits for greater collaboration between colleges and the private sector, the potential of instructional technology on training, and, finally, about the the major uncertainty of the financing of higher education (Gold, 1981b).

Brazziel (1981) conducted a study of 116 institutions working to develop programs designed to meet corporate needs for personnel development. His research indicated that colleges should fashion programs designed to appeal to the full-time working student, especially by incorporating internships into the

curriculum. Colleges and the private sector must attend to each other's needs and make concerted efforts to understand each other. One way to accomplish this is to arrange for faculty exchanges in the private sector. Colleges need to target their efforts and respond to industry needs in a timely manner and should consider granting credit for industry training. This research, based on a Likert rating instrument, provided to college presidents, indicated that second and third Fortune 500 companies offered the best potential for partnerships with colleges (Brazziel, 1981).

In the Fall of 1983 the Educational Record published a series of articles dealing with the latest findings on higher education's role in employee education and revitalizing the work force. The articles by Butler, Carnevale, Lynton, and McPherson and Schapiro, demonstrated that human capital is as important as financial capital for the maintenance and renovation of American industry, that the role of colleges and universities is vital in the educating and reeducating of human capital, that education has made and will continue to make a crucial contribution to economic development, and that educational policy needs to be adapted to meet the challenges of global competition and technology. In summary, the authors argued that approaching the educational needs of the work force in an *ad hoc* fashion will not suffice unless there is a commitment to a public strategy that includes a major role for postsecondary education in training to assist workers to become productive members of the labor force (Butler, 1983; Carnevale, 1983; Lynton, 1983; McPherson & Schapiro, 1983).

Following up on Lynton's (1984) study, described in the previous section, the American Association of Community and Junior Colleges sponsored a study

of community college partnerships (Day, 1985). Surveying 1,219 colleges (770 or 63.2% responded), this study was similar to the NCOE study described above, with an emphasis on linkages rather than economic development. However, this research found similar patterns to the NCOE study in contract and customized training, in-plant training, and employee education.

> This survey indicates that the nation's community, technical, and junior colleges are working cooperatively with a large variety of public and private sector organizations to provide general and specialized training programs for their employees (Day, p. 31).

As a result of this study, Day recommended that colleges "roll up their sleeves" to improve relationships with business and industry and that income generated by partnerships be used to reduce resource shortages. Day also suggested that by providing quality programs for business and industry, colleges can enhance the reputation of all college programs and services plus build credibility in the business community (Day, 1985).

Numerous educational studies have reported on what business and industry desire and demand in an educated work force. Of note is a study by Pratzner and Russell (1984) related to quality of life in the workplace. The authors of this study reviewed recent literature and research and visited nine firms recognized as leaders in providing a quality life environment for workers. The results of their study indicated a need for the worker in today's high-involvement, participative company to have skills in group problem solving, decision making, planning and interpersonal skills, and knowledge of business economics and operations and management and quality control techniques (Pratzner and Russell, 1984). Community colleges attempting to address the needs of the employed student could use these topics as the basis of program

design.

Peterson, *et al.*, (1982) compared the opportunity for adult education and training in nine industrialized countries. They stated, "It is probably fair to say that there is not now, and never has been, any coherent, comprehensive approach to employee training in America" (p. 105). They cited Lusterman's 1977 study as the best available information on training in America. In 1982, close to five million people attended college part-time. Most of these, especially women, were employed full-time; only 10% received tuition aid from employers. The United States, with 27% of the population participating in adult learning, ranked third behind the Soviet Union (31%) and Sweden (29%). However, most industrialized nations by law use their manpower training systems to meet economic and labor market needs. Many of these manpower training programs are designed to provide upward mobility or adjustment to technological changes. Sweden has an extensive system of occupational training that workers use throughout their careers. West Germany has large apprenticeship programs, and Japan businesses continuously train their own and their suppliers' workers (Jacobs, 1989). Peterson, *et al.*, (1982) determined that manpower training policy in this country is weak. Unlike most European countries, American industry relies on the postsecondary educational system for trained workers instead of training their own; and American businesses are reluctant to pay for their own training programs and allow workers time off for education.

Peterson, *et al.*, (1982) provided recommendations based on their study. The most important of these were that broad goals for education and training of adults be established at all levels of government, that national, state and local

councils be created to promote adult learning opportunities, that mechanisms be developed to facilitate the training of adults for critical occupations, that business tax incentives be instituted for in-house training efforts, and that colleges create special educational opportunities for workers both on campus and in the workplace and at times and in formats tailored to the employed. These recommendations are consistent with the literature and research reviewed in this paper. The authors pointed out that the United States has a history of passing legislation regarding lifelong learning or educational outreach programs with commendable goals regarding the training of the American work force, but no funds are appropriated to implement such legislation. One of the results of this is that most European countries have progressed farther than the United States in developing training for the employed, especially the blue-collar worker (Peterson, *et al.*, 1982).

As indicated throughout this paper, high schools have not been able to satisfy the demands of industry for a trained workforce. Adult learners offer one of the few options to meet these demands. Adults seem attracted to short-term technological programs and often return for educational experiences more than once. Adults bring a variety of experience to the classroom and think of themselves "as users of education rather than recipients" (Heyse, 1983, p. 134). Adults are practically oriented; their goals and learning activities need to be designed to meet the unique needs of adults.

Adult education is a relatively new field (Heyse, 1983). However, in recent years, the volume of adult education has increased sharply as a result of the demographics and changing work environment described throughout this paper. Harman (1985) claimed that adult education is at least

as significant as primary, secondary, and higher education, yet has failed

> ...to describe itself in systematic terms and still lacks accepted definition. At present, it retains its traditional posture of incorporating a range of disparate programs sponsored by an equally diverse group of entities essentially sharing only one characteristic--the fact that all serve adult learners. Devoid of the cohesion that characterizes most educational systems, adult education generally remains in the throes of a seemingly perpetual quest for identity, both in terms of its intellectual underpinnings and its organizational persona. All too often, perceptions of marginality serve to constrain its development and the process of inquiry so necessary for its nourishment (Harman, 1985, p. 1).

The term "lifelong learning" also suffers from the same lack of definition and analysis. Richardson (1979) maintained that lifelong learning is a catchall phrase attached to a variety of community college programs that cannot be easily separated as a unique college function.

> Although community colleges are commonly associated with the term "adult education," the adult education component of the community college's total effort cannot be easily identified and examined (Center for the Study of Community Colleges [CSCC], 1986, p. 33).

However, adult education has been successful in avoiding the criticism targeted toward other educational levels, partly because of adult education's ambiguous nature.

In 1982 Cross described a profile of the typical adult student. Most were white high school graduates, 25-35 years of age, involved in job related courses to improve their current work situation. The cost of their education was self-paid and they were satisfied with their course, usually taken at community colleges or senior institutions in a classroom format. Those that dropped felt that courses were too demanding or disappointing (Cross, 1982). Harmon (1985) suggested that the explosion in adult education in recent years is the

result of workplace needs. Advances in technology and managerial patterns require that employees stay up to date. The failure of formal education to prepare students for the workplace is forcing employers to provide both entry-level and on-the-job training. Labor mobility is also contributing to a need for training to develop workplace skills. Harmon also suggested that many employees are providing educational opportunities for workers in areas not related to job competencies, such as personal and family issues. Nonetheless, adult education has always occupied a marginal position in education and educational research and would be in a better position to contribute to the growth in training and retraining "had greater emphasis been placed on its own evolution" (Harman, 1985, p. 8). Harmon supported this thesis by detailing how corporate education staff and a growing industry of consultants are providing the professional guidance for private sector training, not the educational professional.

As indicated, adult education is one of the most confused and least understood terms in higher education, partly as a result of the newness of the field. Questions that beg answers are: Who is an adult? How does teaching adults differ from teaching children? What is the scope of adult education as a field? Despite considerable literature in the field, there is a lack of theoretical consensus regarding adult education. Knowles, Houle, Brookfield, and others all differ on their approach to adult educational theory. Knowles postulated that learning styles of adults are significantly different from those of younger students. Houle proposed that the differences are minimal and relate to experiences and maturity. Brookfield stands in the middle of this polarization (CSCC, 1986). "Efforts to define adult education generally center on the

characteristics of adulthood and on the implications of those characteristics for educational practice; there is agreement on neither point" (CSCC, 1986, p. 3). The result of this confusion is that community colleges serve a heterogeneous population that does not easily breakdown into clear classifications for study.

Adult education in community colleges is also a relatively new phenomenon. Although some pioneering efforts at serving adults were initiated in California during the 1930s, colleges did not extend services to adults in a significant fashion until after World War II. During the last 20 years, the growing tendency of working adults to pursue education has resulted in industry and community colleges serving the same population. "Formally full-time workers are now becoming part-time students and formally full-time students are becoming part-time workers" (Cross & McCartan, 1984, pp.19-20). Therefore, community colleges no longer focus solely on the traditional 18-22 year old student.

In 1984 the National Council on Continuing Education (NCCE) reported that more than 23 million adults participate in continuing education annually. Reporting on the testimony from scores of organizations and individuals, NCCE found that educational institutions were no less affected by the trends in society than other social entities. Demography, technology, and the economy will affect the way Americans spend time in the workplace and the classroom. Of the 23 million Americans who participated in continuing education, two out of three were employed and cited job or career objectives as the major reason for attending continuing education courses. This report indicated that the gap between the workplace and classroom was narrowing. Collaboration between educators and employers on meeting the educational needs of the work force

was intensifying. The report suggested that information about the changing nature of work and the supply and demand for workers was insufficient and that the federal government has the responsibility to correct this problem as well as provide funding for research and development regarding manpower training programs (NCCE, 1984). This report compliments Peterson's international study described above.

Also in 1984, the American Association for Adult and Continuing Education (Mark, 1984) conducted a study of basic skills training in the workplace. Although the return rate on the survey for this study was low, the results indicated that most basic skills training was for new employees, career advancement, or retraining. About 2.4% of the employees of the companies that responded to the survey were in basic skills training. A typical employee in basic skills education spent 51 hours per year in the classroom. Many employees were seen as not qualified for additional training because of basic skill deficiencies in math, reading, oral communication, writing, workplace skills, and problem solving (Mark, 1984). Tenopyr (1984) suggested that while the need for literacy in the workplace is generally accepted, there are questions regarding the level of required literacy skills as well as who is responsible for providing adult literacy training. She suggested the development of a national database to collect information on workplace literacy needs and deficiencies. She also suggested that many employers change the nature of a job when they find unacceptable employee performance based on literacy deficiencies. Organizations themselves change, thus requiring different employee skill levels; and employers are concerned about the effectiveness of literacy education. She also argued that the private sector tends to be cautious about providing this

type of training to employees (Tenopyr, 1984).

Mahoney (1982) studied 37 colleges with contract educational services. Although a "how to" booklet was produced that guided colleges through the process of setting up business and industry contract programs, little attention was given to the characteristics and needs of working adults (Mahoney, 1982).

Deegan and Drisko also conducted a study of community college involvement in contract training in 1983. Sixty-nine percent of the responding institutions (402 out of 1258 survey forms mailed) reported that they had established a contract training program. Business and industry were the most common clients, representing 69% of the contracts. Forty-three institutions reported offering only credit courses, 73 offered only non-credit programs, and both credit and non-credit efforts were provided by 221 colleges. Colleges cited lack of qualified instructors, and internal support, time pressures, inadequate facilities, and difficulties in scheduling as problems in providing contract training. However, these problems were offset by improved relationships with business, increased revenue and visibility, and the opportunity to provide real-world contact for faculty. Respondents predicted an increase in the importance of contract training because community colleges can offer cost effectiveness, changing economic conditions, and better marketing efforts on the part of community colleges as they gain experience in providing training services (Deegan & Drisko, 1985).

In 1981 the Ohio Board of Regents, with a grant from the W. K. Kellogg Foundation, undertook one of the most comprehensive state studies currently available to determine the opportunities for adult learning. The goal of the study was to build a case for stronger business, education, and government alliances

that promote lifelong learning and economic development in Ohio. The study described Ohio's demographics, political factors related to education, economic factors, and educational conditions. At the time of the research, Ohio was experiencing a loss of traditional blue-collar jobs. This loss was not being offset by an increase in service-oriented jobs because companies were reluctant to locate in areas with large unskilled labor pools. However, the report concluded that the state's 179 postsecondary institutions were well suited to provide service to the private sector and adult students. The report identified the number of adults participating in adult basic education, high school completion programs, adult vocational programs, degree programs, and non-credit continuing education programs. The researchers found that 62,000 adults were enrolled in adult basic education, 325,000 adults were served annually in adult vocational programs, 80,000 students over age 30 were enrolled in degree programs, 35,000 adults were enrolled in non-credit technical education, and, 240,000 were participating in non-credit skill or professional development programs.

The purpose of the study was to assess the needs of adult learners, determine the scope of training in business and industry, determine how higher education could be more responsive to the training needs of Ohio adults, and to investigate linkages with and barriers between other organizations. Data were gathered using a combination of regional meetings, surveys of continuing education programs of colleges and universities, surveys of employer-sponsored training, and surveys of Ohio's colleges regarding business contacts.

The study concluded that economic revitalization was a major issue to

policymakers and business and educational leaders; that a need exists for greater cooperation between these groups; that large companies take care of their own training needs, but medium and small firms were seeking alternatives; and that continuing education of the adult work force can be most effectively met by joint effort between colleges and the private sector.

The study resulted in a major effort by the Ohio higher education community to publicize the methods it uses to meet the education needs of the private sector and to encourage postsecondary institutions to improve efforts at collaboration with business and industry. In addition, the Board established a continuing education newsletter, a regents liaison linkage project, regional collaborative structures, and a resource network. Policies were suggested that would organize all continuing education professionals from two and four-year colleges into one group, the inclusion of a section on a new "social compact" between higher education and society in the state's master plan for education, and the creation of the Ohio Business, Education and Government Alliance. This study was highly publicized during the early 1980s. The Ohio Board received numerous requests for information from publications and conference organizers (Ohio Board of Regents, 1982). The study was a thorough statewide analysis of adult and employee training; however, similar to most of the other research, it ignored the needs and goals of the working student.

Aslanian and Brickell (1988) interviewed adult learners by phone as part of one of the most recent studies of adult learners. This College Board study found that the most important and most frequently cited reason for adults to return to college was career related. They also reported that 67% of students enrolled in two-year institutions are over the age of 30, 25% have 3 years or

more of college, 16% have four-year or graduate degrees, 70% are employed full-time, and 52% take most of their courses after 4:00 pm. They suggested that community colleges need to be especially sensitive to a shifting labor market. The book described the demographic information and changing nature of work. By the year 2000, immigrants, many in need of literacy and basic skill training, will represent the largest share of the increase in the workforce since World War I. Only 15% of new workers will be white males, compared to 47% in the existing workforce. The service and information industry will create most of the new jobs and wealth in the future. There are some indications that the information industry and information-related jobs represent 60% of the workforce already. As indicated throughout this paper, there will be very few jobs for those who cannot read, compute, or follow directions. Prosperity and productivity are inseparable, both depending on how fast worker output increases over the next few years. The conflict between women, work, and families will need to be solved; and minorities will need to be fully integrated into the economy. The authors recommended that community colleges expand their services to employers and employees with a goal to upgrade and retrain as many as 30 million current workers before the year 2000 (Aslanian & Brickell, 1988).

In 1990 the Commission on the Skills of American Workforce released a report advocating that business, schools, and government overhaul the "haphazard, incoherent, and bureaucratic " system of job training in the U. S. This report concluded that there was a subtle and complex skill shortage for 80% of employers that related less to technical ability and more to work ethic and appropriate social behavior skills. Only 15% of the surveyed firms

mentioned specific shortages of workers, usually in the traditional craft and construction trades, and manufacturing, secretarial, and health workers. Only 30% of the firms were concerned about future predictions of labor shortages. The report concluded that only a small percentage of businesses were creating high technology jobs that require broad-based adaptability skills. Only 10% of American firms were reorganizing their production lines on the Japanese model of giving front-line workers more responsibility and authority. Most companies were cutting wages, exporting labor intensive processes offshore, or using automation to remain productive. The title of this report, "America's Choice: High Skills or Low Wages," described the challenge for continued competitiveness of the U. S. economy. One of the Commission's recommendations to meet the challenge was a call for incentives and assistance to encourage employers to invest in the continued education of employers and to achieve high production forms of work organization. This report is somewhat in conflict with the seminal study, Workforce 2000 (Johnston & Taylor, 1987), that predicts a higher rate of growth for occupations that require high educational levels. "Of all the new jobs that will be created over the period 1984-2000 period, more than half will require some education beyond high school, and almost a third will be filled by college graduates" (p. XIX).

In 1990 NCOE issued a report on two-year colleges' efforts to improve productivity in the nation's workforce. Titled Productive America, this report contained a discussion and significant bibliographic information on the dynamics of global competition, productivity, special population training needs, and the strengths of community colleges in providing a productive workforce. A strategic model was proposed for training, and an interactive model was

detailed for linking business and education. The community college mission and characteristics of affordability, flexibility, diversity, and high levels of responsiveness to the private sector were cited as strengths for producing a productive workforce.

Also in 1990 Borton used data gathered from focus groups of Washington State community college working students and employers at six colleges to determine that the workforce needs to be able to learn continuously, adapt to new technology, be flexible, and think globally. Borton suggested that younger workers were often disillusioned with work, were substance abusers, were troubled with complicated problems, and believed that education is not important. This is in contrast to many older workers who were committed to the importance of education, were goal-oriented, were motivated, demonstrated strong initiative, and want to improve their working situation. Workers in general want flexible work and educational schedules and prefer hands-on approaches to education and training that consolidate application and theory. Borton determined that businesses need a single contact at a college in order to develop training linkages. Businesses were confused by college rules, needed immediate answers, were disappointed by the lack of responsiveness of some colleges, and were especially interested in assurances of training program continuance. In addition, employers were interested in control or governance of training programs that affect their productivity and desired better use of training networks throughout Washington State (Borton, 1990).

A DIALOG search of dissertation abstracts using descriptors of working adults, employed adults, job upgrading, retraining, work-skill enhancement, and community colleges produced only three abstracts. One related to youth

employment, one to colleges in Nigeria, and the final one to theories of vocational choice. Baar-Kessler (1984) studied Fortune 500 companies to obtain information on the extent of literacy training in the private sector as a M. Ed. thesis. She determined that almost one-quarter of the companies offered some form of developmental education designed to increase worker skills and productivity. Although about one-third of the responding companies felt that schools had not prepared employees adequately, the results of this study indicated that there is a relatively small amount of literacy training in the private sector to correct this lack of preparation (Baar-Kessler, 1984).

Case Studies

Numerous case studies have been published regarding higher education and business and industry cooperation, contract training, and economic development activities of colleges and universities. Kopecek and Clarke authored one of the more comprehensive studies in 1984. Their study was directed toward community colleges and provided examples of successful customized job-training programs by industry type. Based on their review of cases, the authors also provided direction for organizing a business outreach program and described the components of successful training programs (Kopecek & Clarke, 1984). Fenwick, Meyers, Kopecky, Giorgio, and Lloyd (1986) provided a more thorough analysis of the components necessary for successful campus-business linkages. Although this study provided excellent advice on program construction, curriculum development, implementation procedures, and evaluation techniques, a directory of campus-business linkages provided insufficient information on working adults to review or

analyze (Fenwick, Meyers, Kopecky, Giorgio, & Lloyd, 1986).

In 1983, Warmbrod, sponsored by the National Center for Research in Vocational Education, published a case-study guide for retraining and upgrading workers. The purpose of the guide was to provide college administrators with information on retraining and upgrading workers for local economic development. Five community colleges or technical colleges were visited. They were selected based on extensive experience in serving the needs of business and industry in work-skill enhancement for adult workers. Programs were reviewed using a qualitative research methodology. Based on the results of the study, the author suggested that strong presidential leadership is essential for mobilizing a college to serve industry and workers. College mission statements should be rewritten to demonstrate a commitment to providing training and education to working adults. Institutional flexibility and communication were critical to responding to the needs of adult workers and convincing industry that the college is committed to serving business training needs. Other recommendations were provided regarding faculty, staff development, advisory committees, course scheduling, and quick response (Warmbrod, 1983).

Numerous journal articles have dealt with individual examples of successful training programs. As an example, Luxenberg (1980) described how AT&T spends one billion dollars a year to train employees. AT&T closely monitors employee performance to determine needs for additional training and to discover the skills necessary to prepare new employees for tightly structured jobs. Under AT&T's Center for Technical Education, training is divided into forecasting, engineering, business services, and network operations.

Curriculum development is driven by the needs of these four areas. Emphasizing the solutions to real day-to-day problems and providing only the minimum training necessary, the Center designs courses by first writing the final exam, which usually is based on a real-life situation or problem. AT&T also uses an extensive system of student input regarding the value and utility of courses to plan future efforts (Luxenberg, 1980). These techniques for curriculum development provide valuable guidance for community colleges desiring to serve working students or develop linkages with the private sector.

Gill and Suggs (1986) described a unique approach to developing and implementing training for business. Using DACUM (Developing A CurriculUM), the South Carolina State Board of Technical and Comprehensive Education started a process that defined specific training requirements that were needed by participating companies. Workers identified their training needs and the degree to which they felt training was needed. Cooperating community colleges used this information to develop the training. Management of the businesses committed themselves to a company-wide training effort; thus, both supervisors and workers were involved in the process. Gill and Suggs reported that based on an analysis of programs in eight companies, worker self-esteem, efficiency, and productivity were improved because of new partnerships between workers, companies, and the colleges. This approach provides some valuable ideas for working with employed students and business and industry, although DACUM is a time-consuming operation that would work best if a long-term relationship is established with a specific company. Spokane Community Colleges have incorporated DACUM throughout their entire vocational curriculum, resulting in tremendous involvement from industry and labor.

"Working adults pursuing education require a unique approach to learning, based on job-related skills and abilities and personal interests and experiences" (Bua, 1983, p. 86). This statement introduced Bua's article describing a model industrial and academic collaboration project between Pace University and Ebasco Services. The project resulted from a study of the Ebasco's tuition-assistance program, which indicated that many of the engineering, construction, and technical personnel were pursuing degrees in business administration. Ebasco searched to find a higher education institution flexible enough to grant credit for corporate training, to respond to working student needs, and to conduct courses at convenient times and locations. Pace set up the "Business Certificate Program" for the company with the idea that through collaborative efforts, adults can acquire learning in settings other than college campuses. The program has enhanced the credibility of company training, helped the company identify high potential employees, reduced turnover, provided an affirmative action role, and established a precedent for future industry-academic linkages (Bua, 1983). Community colleges might take note of the flexible approach demonstrated by both the company and the university.

The College Board published a study in 1989 that reviewed the history, administrative structure, staffing, marketing, clientele, faculty, programs, pricing, and college administrators' reflections on contract training (Aslanian, 1989). Twenty-eight two and four-year colleges participated in the study. The study, although similar to the Kopecek and Clarke study and Fenwick, Meyers, Kopecky, Giorgio, and Lloyd 's research described above, was considerably more thorough, providing detailed case descriptions of individual college and

university efforts in contract training. Diversity was the key finding of the study--diversity of delivery systems, college organizational structures, and clients. Community colleges were more active in providing contract training than senior institutions. Non-credit instruction was the most common method of delivering coursework. Finding qualified faculty was a problem for at least one-third of the educational institutions. However, the study concluded that education can justifiably enlarge its mission by incorporating contract training into the functions of colleges. One major point worth noting about this study is the tendency for institutions, especially community colleges, to move contract training and business and industry outreach efforts out of the role of continuing education offices into discrete offices (Aslanian, 1989).

Using case studies and comparative analysis of the linkages between three postsecondary institutions and the private sector, Schieffer (1989) provided data-based descriptions of the linking process. Based on his study of a community college, private university, and state university, Schieffer concluded that organizational philosophy is an important factor in the success of college and private sector linkages. Colleges should seek partners predisposed by philosophical orientation towards collaboration. Companies with well-developed human resource departments tend to be more compatible, but also may be less likely to need services. However, companies that place great emphasis on work force education, but lack internal resources, have strong potential for partnerships. Schieffer determined that postsecondary education can provide service at considerably less cost than the private sector and that private sector organizations usually will link with institutions located geographically close to their own operations. Colleges should watch for

companies having legal or other external demands requiring education and training. Colleges should be flexible enough to offer credit for private sector training efforts as a means of gaining entree into corporations and providing service for adult employees. Colleges are ineffective at marketing their training services and should concentrate on informal and personal relationships between college employees and company personnel to build linkages. Finally, colleges need to give constant attention to the quality of programming provided to the private sector. Additional personnel and resources should be added if colleges want to monitor quality and take advantage of an unlimited opportunity for building linkages (Schieffer, 1989).

Summary and Conclusion

Most of the literature and research reviewed for this study described the benefits of collaboration for educational institutions and business and industry, or detailed the economic impact of linkages between academia and the private sector. Themes regarding credit for industry training, simple and flexible approaches to the private sector, commitment from top college leadership, and the importance of providing a quality educational product were common throughout the literature and research. The research also indicated that changing demographics and the impact of technology will increase the demand for worker education, especially at the non-managerial level. Community colleges seemed poised both to benefit and to be challenged from this increase. Yet, very little research has been directed towards the benefit of training and education to the worker. Of course, employee training is designed to increase productivity, efficiency, and ultimately profitability, which all benefit

the worker by contributing to job maintenance and increased wages. However, the question remains regarding the value of intangible benefits for workers. Does training increase job satisfaction, build self-esteem, provide a sense of loyalty between the employee and employer, or contribute to the workers' personal goals regarding career development or mobility?

One study inadvertently provided some answers to these questions; however, the purpose of the study was to analyze evaluation practices, not employee satisfaction. Schoen and Sean (1983), in their study of the University of Ohio's extended degree program at an aircraft engine plant, determined that the program provided career growth for a majority of the graduates, encouraged integration of work and learning, improved students' attitudes and performance, and enhanced students' self-confidence and self-worth. "A majority of the graduates identified personal satisfaction as the motivation for seeking a degree" (Schoen & Sean, 1983, p.10). Career growth was not the most important goal of the students. Yet, as indicated, this research was not designed to evaluate the effectiveness of training, but rather the effectiveness of evaluation of training.

To improve the quality of linkages between colleges and the private sector and to provide the best possible training for business and industry's employees, knowledge of the goals and objectives of workers has emerged as paramount. Instruments already exist to determine factors that influence working students' satisfaction with education. Dubravcic, Chinien, and Pratzner (1986) described several methodologies in Evaluating Short-Term Skill Training. Extensive models were provided by Ponce and Franchak (1981) in Evaluating Student Satisfaction. As already indicated, the National Council for Occupational

Education determined that 93% of responding colleges provide supplemental training for employees, 94% prepare workers for career changes, and 87% provide in-plant training (NCOE,1987). Determining the relative value of these opportunities to the working student and learning how college sponsored education and training compare with programs offered by the company would provide valuable data for the effective design of future efforts.

As James Long (1989) stated in Terry O'Banion's book, Innovation in Community Colleges, "There are far more benefits than shortcomings in college/private sector partnerships, for all participants" (p. 175). Long believes that community colleges will be vastly enriched by partnerships with industry, government, and other educational institutions. Not only will colleges enroll students in these partnerships, but they will also revise teaching practices and revitalize communities (Long, 1989). Perhaps the working student will receive the most benefit from partnerships. The enrichment of their lives may be the most important reason for the connections. Colleges need to know how well they are doing in this critical area of education, if only because data systems, instruction, and support services are currently designed to meet the needs of the individual student. However, by serving working adults, community colleges are simultaneously meeting the needs of the individual, employer and labor groups, and the nation's economic development requirements.

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